

## **AMENDMENTS TO THE CLAIMS**

This listing of claims will replace all prior versions, and listings, of claims in the application:

### **Listing of Claims:**

1        1. (Currently amended) A method for bypassing use of a protocol  
2        checksum during communications across a reliable network link, comprising:  
3                configuring a communication system to bypass use of the checksum during  
4        communications across the reliable network link;  
5                receiving an outbound packet at a source to be transmitted to a destination  
6        across the reliable network link;  
7                determining whether the outbound packet is directed to a valid destination  
8        that is eligible for checksum bypassing; and  
9                if so, sending the outbound packet to the destination across the reliable  
10      network link without computing the checksum for the outbound packet;  
11                wherein neither the source nor the destination computes the checksum for  
12        the outbound packet.

1        2. (Original) The method of claim 1, wherein configuring the  
2        communication system to bypass the checksum involves informing a protocol stack  
3        within the communication system that network interface hardware for the  
4        communication system is capable of computing the checksum, so that the protocol  
5        stack does not compute the checksum.

1        3. (Currently amended) The method of claim 1, further comprising:

2           determining whether the outbound packet is directed to a valid destination  
3           that is eligible for checksum bypassing;  
4           if the outbound packet is not directed to a valid destination,  
5           computing the checksum for the outbound packet, and  
6           inserting the checksum into the outbound packet.

1       4. (Original) The method of claim 3, wherein the checksum is computed  
2       by a driver associated with network interface hardware for the communication  
3       system.

1       5. (Original) The method of claim 1, further comprising:  
2           receiving an inbound packet from a source across the reliable network  
3           link; and  
4           accepting the inbound packet without re-computing the checksum;  
5           wherein re-computation of the checksum is required by the communication  
6       protocol to verify that the inbound packet was received without errors.

1       6. (Original) The method of claim 5, wherein accepting the inbound packet  
2       without re-computing the checksum involves:  
3           communicating a default checksum value to a protocol stack within the  
4       communication system;  
5           wherein the default checksum value matches the default checksum value  
6       contained within a checksum field of the inbound packet;  
7           whereby the protocol stack will match the default checksum value with the  
8       checksum field of the inbound packet and will consequently accept the inbound  
9       packet.

1           7. (Original) The method of claim 6, wherein accepting the inbound packet  
2 without re-computing the checksum additionally involves inserting the default  
3 checksum value into the checksum field of the inbound packet.

1           8. (Original) The method of claim 1, wherein the communication protocol  
2 includes one of:  
3           Transmission Protocol (TCP);  
4           Internet Protocol (IP); and  
5           User Datagram Protocol (UDP).

1           9. (Currently amended) The method of claim 1, wherein the reliable  
2 network link adheres to the Infiniband™ InifBand standard.

1           10. (Original) The method of claim 2,  
2 wherein the checksum is a TCP checksum; and  
3 wherein the protocol stack is an IP stack.

1           11. (Currently amended) A computer-readable storage medium storing  
2 instructions that when executed by a computer cause the computer to perform a  
3 method for bypassing use of a protocol checksum during communications across a  
4 reliable network link, the method comprising:  
5           configuring a communication system to bypass use of the checksum during  
6 communications across the reliable network link;  
7           receiving an outbound packet at a source to be transmitted to a destination  
8 across the reliable network link;  
9           determining whether the outbound packet is directed to a valid destination  
10          that is eligible for checksum bypassing; and

11           if so, sending the outbound packet to the destination across the reliable  
12    network link without computing the checksum for the outbound packet;  
13           wherein neither the source nor the destination computes the checksum for  
14    the outbound packet.

1           12. (Original) The computer-readable storage medium of claim 11,  
2    wherein configuring the communication system to bypass the checksum involves  
3    informing a protocol stack within the communication system that network interface  
4    hardware for the communication system is capable of computing the checksum, so  
5    that the protocol stack does not compute the checksum.

1           13. (Currently amended) The computer-readable storage medium of claim  
2    11, wherein the method further comprises:  
3           ~~determining whether the outbound packet is directed to a valid destination~~  
4    ~~that is eligible for checksum bypassing;~~  
5           if the outbound packet is not directed to a valid destination,  
6           computing the checksum for the outbound packet, and  
7           inserting the checksum into the outbound packet.

1           14. (Original) The computer-readable storage medium of claim 13,  
2    wherein the checksum is computed by a driver associated with network interface  
3    hardware for the communication system.

1           15. (Original) The computer-readable storage medium of claim 11,  
2    wherein the method further comprises:  
3           receiving an inbound packet from a source across the reliable network  
4    link; and

5 accepting the inbound packet without re-computing the checksum;  
6 wherein re-computation of the checksum is required by the communication  
7 protocol to verify that the inbound packet was received without errors.

1 16. (Original) The computer-readable storage medium of claim 15,  
2 wherein accepting the inbound packet without re-computing the checksum  
3 involves:  
4 communicating a default checksum value to a protocol stack within the  
5 communication system;  
6 wherein the default checksum value matches the default checksum value  
7 contained within a checksum field of the inbound packet;  
8 whereby the protocol stack will match the default checksum value with the  
9 checksum field of the inbound packet and will consequently accept the inbound  
10 packet.

1 17. (Original) The computer-readable storage medium of claim 16,  
2 wherein accepting the inbound packet without re-computing the checksum  
3 additionally involves inserting the default checksum value into the checksum field  
4 of the inbound packet.

1 18. (Original) The computer-readable storage medium of claim 11,  
2 wherein the communication protocol includes one of:  
3 Transmission Protocol (TCP);  
4 Internet Protocol (IP); and  
5 User Datagram Protocol (UDP).

1 19. (Currently amended) The computer-readable storage medium of claim

2   | 11, wherein the reliable network link adheres to the Infiniband™ InfiBand  
3   | standard.

1       20. (Original) The computer-readable storage medium of claim 12,  
2       wherein the checksum is a TCP checksum; and  
3       wherein the protocol stack is an IP stack.

1       21. (Currently amended) An apparatus that bypasses use of a protocol  
2       checksum during communications across a reliable network link, comprising:  
3            a configuration mechanism that selectively configures a communication  
4       system to bypass use of the checksum during communications across the reliable  
5       network link, wherein the configuration mechanism is configured to determine  
6       whether the outbound packet is directed to a valid destination that is eligible for  
7       checksum bypassing;  
8            a receiving mechanism at a source that is configured to receive an  
9       outbound packet to be transmitted to a destination across the reliable network link;  
10      and  
11        a sending mechanism that is configured to send the outbound packet to the  
12       destination across the reliable network link without computing the checksum for  
13       the outbound packet;  
14        wherein neither the source nor the destination computes the checksum for  
15       the outbound packet.

1       22. (Original) The apparatus of claim 21, wherein the configuration  
2       mechanism informs a protocol stack within the communication system that  
3       network interface hardware for the communication system is capable of computing  
4       the checksum, so that the protocol stack does not compute the checksum.

1        23. (Currently amended) The apparatus of claim 21,  
2        ~~wherein the configuration mechanism is configured to determine whether~~  
3        ~~the outbound packet is directed to a valid destination that is eligible for checksum~~  
4        ~~bypassing; and~~

5                wherein if the outbound packet is not directed to a valid destination, the  
6        configuration mechanism is configured to,  
7                compute the checksum for the outbound packet, and to  
8                insert the checksum into the outbound packet.

1        24. (Original) The apparatus of claim 23, wherein the checksum is  
2        computed by a driver associated with network interface hardware for the  
3        communication system.

1        25. (Original) The apparatus of claim 21, wherein the receiving  
2        mechanism is configured to:  
3                receive an inbound packet from a source across the reliable network link;  
4        and to  
5                accept the inbound packet without re-computing the checksum;  
6                wherein re-computation of the checksum is required by the communication  
7        protocol to verify that the inbound packet was received without errors.

1        26. (Original) The apparatus of claim 25,  
2        wherein the receiving mechanism is configured to communicate a default  
3        checksum value to a protocol stack within the communication system; and  
4                wherein the default checksum value matches the default checksum value  
5        contained within a checksum field of the inbound packet;  
6                whereby the protocol stack will match the default checksum value with the

7       checksum field of the inbound packet and will consequently accept the inbound  
8       packet.

1           27. (Original) The apparatus of claim 26, wherein the receiving  
2       mechanism is additionally configured to insert the default checksum value into the  
3       checksum field of the inbound packet.

1           28. (Original) The apparatus of claim 21, wherein the communication  
2       protocol includes one of:

3           Transmission Protocol (TCP);  
4           Internet Protocol (IP); and  
5           User Datagram Protocol (UDP).

1           29. (Currently amended) The apparatus of claim 21, wherein the reliable  
2       network link adheres to the Infiniband™ InfiBand standard.

1           30. (Original) The apparatus of claim 22,  
2       wherein the checksum is a TCP checksum; and  
3       wherein the protocol stack is an IP stack.